

## **CLAIMS**

### **We claim:**

1. An access control system for a fleet of vehicles comprising:  
a plurality of vehicle keys having an embedded communication circuit, each communication circuit being programmable for a vehicle operator;  
an access control workstation including a central computer having means for inputting information to the central computer and means for outputting information from the central computer; and  
a read and write mechanism coupled to the central computer, wherein the central computer is operable to electronically communicate with the embedded communication circuit of each of the plurality of vehicle keys and to program each of the plurality of operator's keys with at least a first digital signal, and further wherein the central computer is operable to enable at least two of the plurality of operator's keys to gain access to an operating system of at least one work vehicle of the fleet of vehicles.
2. The access control system of claim 1, wherein all of the plurality of vehicle keys includes a mechanical key portion, and further wherein the at least one work vehicle includes a digital electronic controller and a key switch coupled thereto, wherein the key switch includes locking elements operable by the mechanical key portion of all of the plurality of vehicle keys, and further wherein the digital electronic controller is operable to communicate with the communications circuit of the plurality of operator keys to receive the first digital signal.
3. The access control system of claim 2, wherein the mechanical key portion of all of the plurality of vehicle keys is an elongate member, wherein the key switch includes a plurality of moveable lock elements moveable to unlock the key switch, and further wherein the elongate member has a plurality of recesses oriented to couple with the plurality of moveable lock elements of the key switch to unlock the switch.

4. The access control system of claim 2, wherein the workstation is operable to electronically receive and record digital data indicative of characteristics of the at least one work vehicle from a first vehicle master key, and to subsequently enroll the at least one work vehicle into the fleet.
5. The access control system of claim 1, wherein the workstation is operable to program at least one vehicle key of the plurality of vehicle keys to provide access to each of a plurality of sub-fleets of the fleet of vehicles enrolled in the access control system.
6. A method of operating an access control system for a fleet of work vehicles, the access system having an access control workstation including a central computer and a key reader and writer coupled to the computer and operable to read digital data from and write digital data to a communications circuit of a key, the method comprising the steps of :
  - electronically coupling a first key to the key reader and writer, the first key including characteristics of a first work vehicle stored in digital form;
  - electronically transmitting the characteristics of the first work vehicle from the first key to the central computer; and
  - enrolling the first work vehicle in the fleet.
7. The method of claim 6, wherein the step of enrolling the first work vehicle in the fleet includes the step of making a first electronic record of the first work vehicle in the central computer, the first electronic record enabling the workstation to include the first work vehicle in at least one sub-fleet.
8. The method of claim 7, wherein receipt of the first electronic record of the first work vehicle enables the workstation to program a first vehicle key to operate the first work vehicle.

9. The method of claim 8, further comprising the steps of:
  - electronically coupling a second key to the key reader and writer, the second key including characteristics of a second work vehicle stored in digital form;
  - electronically transmitting the characteristics of the second work vehicle from the second key to the central computer; and
  - enrolling the second work vehicle in the fleet.
10. The method of claim 9, wherein the step of enrolling the second work vehicle in the fleet includes the step of making a second electronic record of the second work vehicle in the central computer, the second electronic record enabling the workstation to include the second work vehicle in at least one sub-fleet.
11. The method of claim 10, wherein the electronic record of the second work vehicle enables the workstation to program a second vehicle key to operate the second work vehicle.
12. The method of claim 6, further comprising the step of electronically reconfiguring the first work vehicle to respond to vehicle keys programmed by the workstation.
13. The method of claim 12, wherein the first work vehicle includes a first digital electronic controller configured to electronically communicate with vehicle operator's keys, and further wherein the step of electronically reconfiguring the first work vehicle includes the steps of:
  - transmitting a digital signal from the central computer to the first key after the step of enrolling the first work vehicle, the digital signal representing the identity of the fleet;
  - storing the digital signal in the first key;
  - transporting the first key to the first work vehicle;
  - electronically coupling the first key to the first digital electronic controller to transmit the digital signal from the first key to the first digital electronic controller; and
  - storing the first digital signal in the first digital electronic controller.

14. The method of claim 13 further comprising the steps of:
  - using the workstation to program a first operator's key to operate the first work vehicle, the programming including at least the step of transmitting a second digital signal to the first operator's key and storing the second digital signal therein;
  - carrying the programmed first operator's key to the vehicle and electronically coupling the programmed first operator's key to the first digital electronic controller; and
  - transmitting the second digital signal to the first digital electronic controller.
15. The method of claim 14, further comprising the steps of:
  - comparing the first digital signal with the second digital signal in the first work vehicle; and
  - electronically enabling access to the first work vehicle by the first operator's key at least in response to the results of the step of comparing.
16. The method of claim 6, wherein the characteristics of the first work vehicle stored in the first key include at least one of the following: a vehicle model identifier, a vehicle horsepower, a vehicle type, and a unique vehicle identification number.